DANTES

Subject Standardized Tests

Fact Sheet
Study Guide

BUSINESS MATHEMATICS

TEST INFORMATION

This test was developed to enable schools to award credit to students for knowledge equivalent to that which is learned by students taking the course. The school may choose to award college credit to the student based on the achievement of a passing score. The passing score for each examination is determined by the school based on recommendations from the American Council on Education (ACE). This minimum credit-awarding score is equal to the mean score of students in the norming sample who received a grade of C in the course. Some schools set their own standards for awarding credit and may require a higher score than the ACE recommendation. Students should obtain this information from the institution where they expect to receive credit.

The use of non-programmable calculators is permitted during the test. Scratch paper for computations should be provided.

CONTENT

The following topics, which are commonly taught in courses on this subject, are covered by this examination.

		Approximate Percent
I.	Number Sense	**9%**
	A. Place value	
	B. Percentage	
	C. Reasonableness of answers	
II.	Algebraic Concepts	**17%**
	A. Linear equations and inequalities	
	B. Simultaneous linear equations	
	C. Solving for the unknown	
	D. Quadratic equations and functions	
	E. Evaluating a function at a certain point	
	F. Extrapolation and interpolation	
III.	Statistics	**12%**
	A. Central tendency (mean, median, mode)	
	B. Weighted averages	
	C. Percentiles	
IV.	Business Applications	**40%**
	A. Interest	
	B. Depreciation/salvage value	
	C. Discounts and credit terms	
	D. Installment purchases	
	E. Markup/markdown	
	F. Taxes	
	G. Inventory (turns/turnovers)	
	H. Payroll	
	I. Breakeven analysis	
	J. Financial ratio analysis	
	K. Promissory notes and other loans	
	L. Interpretation of graphical representations (and misuse of data)	
	M. Unit conversions	
	N. Investment performance measures (e.g., p/e ratios, yield factors, rates of return)	
V.	Financial Mathematics	**22%**
	A. Annuities and present value	
	B. Amortization and future value	

Questions on the test require candidates to demonstrate the following abilities. Some questions may require more than one of the abilities.

- Knowledge of basic facts and terms
  (about 20-25% of the examination)

- Understanding of concepts and principles, including the meanings of operations
  (about 55-60% of the examination)

- Ability to apply knowledge to specific cases or issues, including the ability to compute figures and to read and interpret charts, graphs, and tables
  (about 20-25% of the examination)

SAMPLE QUESTIONS

1. If the general term of a sequence is given by

$$S_n = \frac{(-1)^{n+1} \bullet n}{n+1}$$

and for a certain k the term S_k is negative, which of the following statements is true?

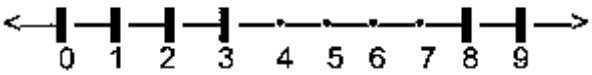
(A) S_{k+1} and S_{k+3} are both negative.
(B) S_{k+2} and S_{k+6} are both negative.
(C) If n is odd, then S_n must be negative.
(D) If n is a multiple of 3, then S_n must be negative.

2. During one month, Jane works 42 hours during the first week and 40 hours during the second week. Her regular pay is $7.50 per hour for 35 hours per week, and she is paid time and one-half for each hour worked in excess of 35 hours. Her FICA deduction is 6.25 percent and her federal income tax is deducted at a rate of 25 percent. If she pays no other taxes, what is her net pay for the first two weeks of the month?

(A) $422.81
(B) $453.75
(C) $461.25
(D) $576.56

3. In Year 1, a company used 120,000 gallons of fuel oil at a cost of $0.75 per gallon. In Year 2, the company used 150,000 gallons at a cost of $0.80 per gallon. By what percentage did the company's total fuel cost increase in Year 2 over Year 1?

(A) -25.0%
(B) 6.7%
(C) 25.0%
(D) 33.3%



4. If X is the coordinate of one of the points indicated by on the number line above, which of the following statements is true?

(A) X is any whole number greater than 3 and less than 7.
(B) X is any whole number between 3 and 8.
(C) X is any whole number between 3 and 7.
(D) X is any whole number greater than 4 and less than 7.

5. A jewelry store wants to sell five diamonds for $1,200 per carat. If the weights of the diamonds are 1/4, 5/6, 3/7, 1/3, and 1/2 carats, what is their total value?

(A) $2,400
(B) $2,750
(C) $2,800
(D) $2,814

6. What is the current yield of a 3 percent bond with a face (par) value of $1,000 if it is quoted at a deep discount price of 6½ percent?

(A) 3.5%
(B) 9.5%
(C) 19.5%
(D) 46.2%

7. A company has five employees and reports its salary averages as a median. If the salary range is $29,000 and the average salary is $20,000, which of the following salary listings could represent the company?

   (A) $12,000, $14,000, $20,000, $25,000, $29,000
   (B) $15,000, $19,000, $20,000, $23,000, $29,000
   (C) $18,000, $19,000, $20,000, $29,000, $47,000
   (D) $20,000, $20,000, $20,000, $23,000, $29,000

8. A new car is going to cost the buyer $12,345.67. The buyer intends to make a down payment and finance the balance with equal payments of $400 at the end of each of the next 30 months. If the loan interest is 12 percent, compounded monthly, what is the amount of the down payment?

   (A) $256
   (B) $1,568
   (C) $2,022
   (D) $2,680

STUDYING FOR THE EXAMINATION

The following is a list of reference publications that were being used as textbooks in college courses of the same or similar title at the time the test was developed. Appropriate textbooks for study are not limited to those listed below. If you wish to obtain study resources to prepare for the examination, you may reference either the current edition of the following titles **or** textbooks currently used at a local college or university for the same class title. It is recommended that you reference **more than one textbook** on the topics outlined in this fact sheet. You should **begin by checking textbook content against the content outline** included on the front page of this Fact Sheet/Study Guide **before** selecting textbooks that cover the test content from which to study. Textbooks may be found at the campus bookstore of a local college or university offering a course on the subject.

Sources for study material suggested but not limited to the following:

Brooks, Lloyd D. *Business Math*. St. Paul, MN: EMC Paradigm Publishing Co., current edition.

Busche, Don, and Flora Locke. *College Mathematics for Business*. New York: John Wiley & Sons, current edition.

Gossage, Loyce C. *Business Mathematics: A College Course*. Cincinnati, OH: South-Western Publishing Co., current edition.

Kelley, J. Roland, Jimmy C. McKenzie, and Alton W. Evans. *Business Mathematics*. Boston: Houghton Mifflin Co., current edition.

McCready, Richard R. *Business Mathematics*. Boston: PWS-Kent Publishing Co., current edition.

Roueche, Nelda W., and Virginia H. Graves. *Business Mathematics: A Collegiate Approach*. Upper Saddle River, NJ: Prentice-Hall, current edition.

Slater, Jeffrey. *Practical Business Math Procedures*. Burr Ridge, IL: Irwin Publishing Co., current edition.

Snyder, Llewellyn R., and William F. Jackson. *Essential Business Mathematics*. New York: McGraw Hill, current edition.

Current textbook used by a local college or university for a course on the subject.

CREDIT RECOMMENDATIONS

The Center for Adult Learning and Educational Credentials of the American Council on Education (ACE) has reviewed and evaluated the DANTES examination development process. ACE has made the following recommendations:

Area or Course Equivalent:	Business Mathematics
Level:	Baccalaureate
Amount: semester hours	Three (3)
Source:	ACE Commission on Educational Credit and Credentials

INFORMATION

Colleges and universities that would like to review copies of tests, have additional information about the national norming, or assistance in local norming or score validation studies should write to: DANTES Program, Mail Stop 11-P, The Chauncey Group International, 664 Rosedale Road, Princeton, New Jersey 08540.

It is advisable that schools develop a consistent policy about awarding credit based on scores from this test and that the policy be reviewed periodically. The Chauncey Group will be happy to help schools in this effort.

Correct Responses to sample questions: 1.B; 2.B; 3.D; 4.B; 5.D; 6.D; 7.C; 8.C.

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